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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/586,072	06/02/2000	Bernd Andreas Edler	Edler 1-4	5463

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EXAMINER	
HAN, QI	

ART UNIT	PAPER NUMBER
2654	

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19

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/586,072	Applicant(s) EDLER ET AL.	
	Examiner Qi Han	Art Unit 2654	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 May 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This communication is responsive to the applicant's Appeal brief dated 05/04/2004 (Paper 18).

Response to Arguments

2. Applicant's arguments filed on 05/04/2004 have been fully considered. By reviewing the specification and the claims, and reconsidering the applicant's arguments, the examiner withdraws the finality of previous office action.

3. In view of the Appeal brief filed on 05/04/2004 (Paper 18), PROSECUTION IS HEREBY REOPENED. A new ground of rejection is set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) request reinstatement of the appeal.

If reinstatement of the appeal is requested, such request must be accompanied by a supplemental appeal brief, but no new amendments, affidavits (37 CFR 1.130, 1.131 or 1.132) or other evidence are permitted. See 37 CFR 1.193(b)(2).

Specification

4. The amendment filed on 07/07/2004 (paper 12) is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states

that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows:

On page 7, lines 23-25, the terms of "In **the** case ..., **as would be apparent to a person of ordinary skill in the art**" are not supported by the original disclosure.

Applicant is required to cancel the new matter in the reply to this Office Action.

Claim Objections

5. Claims 1, 13, 20, 25 and 30-33 are objected to because of the following informalities:

Claims 1, 13, 20, 25 and 30-33, include a limitation of "the [a] masked threshold", wherein the meaning of **masked threshold** is not clear and not descriptive. The limitation appears to be -- a masking threshold -- and is interpreted as so, hereinafter. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claim 7 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Regarding **claim 7**, claim recites that "said signal is an image signal and said adaptive filter is controlled a way that said magnitude response approximates an inverse of visibility threshold", which is disclosed nowhere in the original specification. Even though the claimed subject matter is added in the substitute specification (paper 12, page 7, lines 23-25) under disclosure objection (see above), nowhere else in the specification supports the claim. It is pointed out that the audio signal processed in one dimension is very different from image signal processed two dimensions, including filters, transforms, algorithms and the related hardware and software, which is not disclosed in the specification, thus the applicant's specification does not disclose the claimed subject matter in such full, clear, concise, and exact terms as to enable any person skilled in the art to make and/or use the claimed inventor, without undue effort.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1, 13, 20, 25 and 30-33 rejected under 35 U.S.C. 112, second paragraph, as failing to set forth the subject matter which applicant(s) regard as their invention.

Evidence that independent claim 1, 13, 20, 25 and 30-33 fail(s) to correspond in scope with that which applicant(s) regard as the invention can be found in the Specification. Under "Field of the Invention" section and "Summary of Invention" section, applicant has stated that "the present invention relates generally to audio coding techniques, and more particularly to perceptually-based coding of audio signal" (page 1, line 19-20) and "a perceptual audio coder is disclosed for encoding audio signals" (page 4, line 7), and these indicate that the invention is different from what is defined in the

claim(s) because no **audio coding (encoding decoding)** or **audio signal** is recited in said independent claims.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 1-2, 6-10, 13-14 and 30-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Srinivasan et al. (IEEE Transaction on signal processing, vol. 46, April 1998) hereinafter referenced as Srinivasan, in view of Smith (ISBN 0-9660176-33, 1997) in view of Tsurushima et al. (US 2001/0047256 A1) hereinafter referenced as Tsurushima, in view of Johnston (US 5,481,614).

Regarding **claim 1**, as best understood in view of the claim rejection under USC 112 2nd (see above), Srinivasan discloses high-quality audio compression using an adaptive wavelet packet decomposition and psychoacoustic modeling (title), comprising that an encoder/decoder (Fig. 1) comprises an encoder filter bank structure that has an input, an output, and is controlled by a psychoacoustic model, which has the same input data and has a special output for controlling the filter bank structure (page 1086, right column, paragraph 2-4); the psychoacoustic model (Fig. 1) starts with the frequency domain representation, from which the noise-masking threshold for the critical bands are calculated (page 1087, left

column, paragraph 3), and the magnitude values of the frequency domain representation are converted to a critical band representation and convolved with the spreading function (page 1087, left column, paragraph 4); introduces the concept of subband perceptual rate, which is a measure that tries to adapt the subband structure to approach the psychoacoustic model as closely as possible (page 1086, right column, paragraph 4); the some examples shows a higher threshold in the lower frequency region due to the high-energy (equivalent to a measure using magnitude) peak in the same region and the resulting adaptation (page 1089, right column, paragraph 3), which corresponds to the claimed "filtering said signal using an adaptive filter controlled by a psychoacoustic model, said adaptive filter producing a filter output signal and having a magnitude response".

Even though Srinivasan discloses an adaptive filter, Srinivasan does not specifically disclose the filter "having a magnitude response that approximates an inverse" of certain form of a signal. However, this feature is well known in the art as evidenced by Smith who discloses custom filters (page 297) for "the scientist and engineer's guide to digital signal processing"(book title), comprising deconvolution filter (page 300, paragraph 5), and shows the frequency response of the deconvolution filter, which has an inverse response part (amplitude or magnitude) of another signal (page 306, paragraph 1 and Figure 17-6-d). Therefore, it would have been obvious to one of ordinary skill in the art at time the invention was made to modify Srinivasan by specifically providing a deconvolution filter having an inverse response part (amplitude or magnitude) of

another signal, as taught by Smith, for the purpose of canceling undesired part of spectrum (Smith: page 306, paragraph 1)

Further, Srinivasan in view of Smith does not specifically disclose said inverse of said certain form of a signal being or relating an inverse of "the masked threshold". However, this feature is well known in the art as evidenced by Tsurushima who discloses deconvolution relating the masking threshold found from the allowable noise level (paragraphs 134-144). Therefore, it would have been obvious to one of ordinary skill in the art at time the invention was made to modify Srinivasan in view of Smith by specifically providing deconvolution (inverse convolution) relating the masking threshold, as taught by Tsurushima, for the purpose of taking into account the effects of masking (Tsurushima: paragraph 139). In addition, Tsurushima discloses a combination of a convolution filter circuit 523, divider 526 for deconvolving the allowable noise level, and substractor 528 subtracts the masking threshold from the Bark spectrum SB for masking the portions of the spectral components SB lower than the level of the masking spectrum MS (paragraphs 139-146), which can be broadly interpreted as the claimed "a magnitude response that approximates an inverse of masking threshold", because based on Tsurushima's teaching, the higher masking threshold the lower the output of the substractor, and vice versa.

Furthermore, Srinivasan in view of Smith in view of Tsurushima does not expressly disclose "quantizing and encoding the filter output signal together with side information for filter adaptation control." However, this feature is well known in the art as evidenced by Johnston who discloses a method and apparatus

for coding audio signals based on perceptual model (title), comprising a quantizer and rate control processor 206 in coder (Fig. 2) that takes the outputs from the analysis bank and the perceptual model, and allocates bits, noise, and controls other system parameters so as to meet the required bit rate for the given application (column 7, lines 19-31), a perceptual model (not share input with the filter) processor 204 calculating an estimate of the perceptual importance and noise masking properties for providing improved control of the filtering operations (column 6, lines 16-34). Therefore, it would have been obvious to one of ordinary skill in the art at time the invention was made to modify Srinivasan in view of Smith in view of Tsurushima by specifically providing a quantizer and encoder for the adaptive filter output signal with side information controlled by psychoacoustic model, as taught by Johnston, for the purpose of increase quality for the coding system.

Regarding **claim 2** (depending on claim 1), Srinivasan in view of Smith in view of Tsurushima in view of Johnston further discloses quantizing and encoding step uses a transform or analysis filter bank suitable for redundancy reduction, (Srinivasan: page 1087, left column, paragraph 3, 'FFT'; page 1088, left column, paragraph 3, 'adaptive filter bank'; Johnstion: column 8, lines 'analysis filter bank 202', 'MDCT').

Regarding **claim 6** (depending on claim 1), Srinivasan in view of Smith in view of Tsurushima in view of Johnston discloses audio compression (Srinivasan: page 1085, right column, paragraph 1), which satisfies the limitation of the claimed "said signal is an audio signal."

Regarding **claim 7** (depending on claim 1), as best understood in view of the claim rejection under USC 112 1st (see above), Srinivasan in view of Smith in view of Tsurushima in view of Johnston further suggests that the audio compression technique is adapted from image compression area, along with modifications to use the psychoacoustic model (Srinivasan: page 1085, right column, paragraph 4 to (page 1086, left column, paragraph 1), so that the technique is capable of applying image, which corresponds to the claimed "said signal is an image signal and said adaptive filter is controlled in a way that said magnitude response approximates an inverse of a visibility threshold."

Regarding **claim 8** (depending on claim 1), Srinivasan in view of Smith in view of Tsurushima in view of Johnston further shows that the bit stream output from decoder is transmitted to the input of decoder (Srinivasan: Fig. 1 and page 1091, left column, paragraph 1), which corresponds to the claimed "the step of transmitting said encoded signal to a decoder."

Regarding **claim 9** (depending on claim 1), Srinivasan in view of Smith in view of Tsurushima in view of Johnston further discloses that the compressed PAC signal is output to a communications channel/storage medium 106 (Johnston: Fig. 1 and column 5, lines 26-27), which corresponds to the claimed "the step of recording said encoded signal on a storage medium."

Regarding **claim 10** (depending on claim 1), Srinivasan in view of Smith in view of Tsurushima in view of Johnston further discloses "said encoding further comprises the step of employing an adaptive Huffman coding technique",

(Johnston: column 7, lines 52-60, 'mini-redundancy Huffman coding technique', 'the useful adaptations of the Huffman').

Regarding **claim 13**, as best understood in view of the claim rejection under USC 112 2nd (see above), Srinivasan discloses high-quality audio compression using an adaptive wavelet packet decomposition and psychoacoustic modeling (title), comprising that an encoder/decoder (Fig. 1) comprises an encoder filter bank structure that has an input, an output, and is controlled by a psychoacoustic model, which has the same input data and has a special output for controlling the filter bank structure (page 1086, right column, paragraph 2-4); the psychoacoustic model (Fig. 1) starts with the frequency domain representation, from which the noise-masking threshold for the critical bands are calculated (page 1087, left column, paragraph 3), and the magnitude values of the frequency domain representation are converted to a critical band representation and convolved with the spreading function (page 1087, left column, paragraph 4); introduces the concept of subband perceptual rate, which is a measure that tries to adapt the subband structure to approach the psychoacoustic model as closely as possible (page 1086, right column, paragraph 4); the some examples shows a higher threshold in the lower frequency region due to the high-energy (equivalent to a measure using magnitude) peak in the same region and the resulting adaptation (page 1089, right column, paragraph 3), which corresponds to the claimed "This corresponds to the claimed "filtering said signal using an adaptive filter controlled by a psychoacoustic model, said adaptive filter producing a filter

output signal and having a magnitude response; and transforming the filter output signal using a plurality of subbands suitable for redundancy reduction."

Even though Srinivasan discloses an adaptive filter, Srinivasan does not specifically disclose the filter "having a magnitude response that approximates an inverse" of certain form of a signal. However, this feature is well known in the art as evidenced by Smith who discloses custom filters (page 297) for "the scientist and engineer's guide to digital signal processing"(book title), comprising deconvolution filter (page 300, paragraph 5), and shows the frequency response of the deconvolution filter, which has an inverse response part (amplitude or magnitude) of another signal (page 306, paragraph 1 and Figure 17-6-d). Therefore, it would have been obvious to one of ordinary skill in the art at time the invention was made to modify Srinivasan by specifically providing a deconvolution filter having an inverse response part (amplitude or magnitude) of another signal, as taught by Smith, for the purpose of canceling undesired part of spectrum (Smith: page 306, paragraph 1)

Further, Srinivasan in view of Smith does not specifically disclose said inverse of said certain form of a signal being or relating an inverse of "the masked threshold". However, this feature is well known in the art as evidenced by Tsurushima who discloses deconvolution relating the masking threshold found from the allowable noise level (paragraphs 134-144). Therefore, it would have been obvious to one of ordinary skill in the art at time the invention was made to modify Srinivasan in view of Smith by specifically providing deconvolution (inverse convolution) relating the masking threshold, as taught by Tsurushima, for

the purpose of taking into account the effects of masking (Tsurushima: paragraph 139). In addition, Tsurushima discloses a combination of a convolution filter circuit 523, divider 526 for deconvolving the allowable noise level, and substractor 528 subtracts the masking threshold from the Bark spectrum SB for masking the portions of the spectral components SB lower than the level of the masking spectrum MS (paragraphs 139-146), which can be broadly interpreted as the claimed "a magnitude response that approximates an inverse of masking threshold", because based on Tsurushima's teaching, the higher masking threshold the lower the output of the substractor, and vice versa.

Furthermore, Srinivasan in view of Smith in view of Tsurushima does not expressly disclose "quantizing and encoding the filter output signal together with side information for filter adaptation control." However, this feature is well known in the art as evidenced by Johnston who discloses a method and apparatus for coding audio signals based on perceptual model (title), comprising a quantizer and rate control processor 206 in coder (Fig. 2) that takes the outputs from the analysis bank and the perceptual model, and allocates bits, noise, and controls other system parameters so as to meet the required bit rate for the given application (column 7, lines 19-31), a perceptual model (not share input with the filter) processor 204 calculating an estimate of the perceptual importance and noise masking properties for providing improved control of the filtering operations (column 6, lines 16-34). Therefore, it would have been obvious to one of ordinary skill in the art at time the invention was made to modify Srinivasan in view of Smith in view of Tsurushima by specifically providing a quantizer and

encoder for the adaptive filter output signal with side information controlled by psychoacoustic model, as taught by Johnston, for the purpose of increase quality for the coding system.

Regarding **claim 14** (depending on claim 13), the rejection is based on the same reason described for claim 2 because the claim recites same or similar limitation(s) as claim 2.

Regarding **claim 30**, it discloses an apparatus. The rejection is based on the same reason described for claim 1 because the claim recites same or similar limitation(s) as claim 1.

Regarding **claim 31**, it discloses an apparatus. The rejection is based on the same reason described for claim 13 because the claim recites same or similar limitation(s) as claim 13.

9. Claims 5,11-12 and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Srinivasan in view of Smith in view of Tsurushima in view of Johnston further in view admitted prior art hereinafter referenced as admission.

Regarding **claim 5** (depending on claim 1), Srinivasan in view of Smith in view of Tsurushima in view of Johnston does not specifically disclose that "a filter order and the intervals of filter adaptation of said adaptive filter are selected suitable for irrelevancy reduction." However, the examiner contends that the concept of using a filter bank quantizing and encoding was well known, as taught by admission.

Admission further suggests that a well-know technique (frequency-warping) very efficient in approximation accuracy for a given filter order (page 9, lines 6-23).

Therefore, it would have been obvious to one of ordinary skill in the art at time the invention was made to modify Srinivasan in view of Smith in view of Tsurushima in view of Johnston by specifically providing the well-know technique (frequency-warping) with a given filter order for achieving sufficient approximation accuracy, as taught by admission, for the purpose of increasing the quality for coding system.

Regarding **claim 11** (depending on claim 1), Srinivasan in view of Smith in view of Tsurushima in view of Johnston does not specifically disclose "said filtering step is based on a frequency warping technique using a non-linear frequency scale." However, the examiner contends that the concept of providing a frequency warping technique using a non-linear frequency scale was well known, as taught by admission.

Admission further discloses that the frequency warping technique has described by Strube (page 9, line 8), and also suggests that the frequency scale reflecting the non-linearity of the critical band scale is well known (page 9, lines 16-21).

Therefore, it would have been obvious to one of ordinary skill in the art at time the invention was made to modify Srinivasan in view of Smith in view of Tsurushima in view of Johnston by specifically providing the frequency warping

technique using a non-linear frequency scale, as taught by admission, for the purpose of increasing coding efficiency.

Regarding **claim 12** (depending on claim 1), Srinivasan in view of Smith in view of Tsurushima in view of Johnston does not specifically disclose that "coding stage for filter coefficients comprises a conversion from linear-predictive coefficient filter coefficients to lattice coefficients or to Line Spectrum Pairs." However, the examiner contends that the concept of providing LPC filter coefficients to lattice or to Line Spectrum Pairs for encoding process was well known, as taught by admission.

Admission further discloses that the techniques for speech coding, such as linear-predictive coefficient (LPC) and line spectral pairs (LSP) are well known (page 4, lines 20-25, and page 7, lines 16-30).

Therefore, it would have been obvious to one of ordinary skill in the art at time the invention was made to modify Srinivasan in view of Smith in view of Tsurushima in view of Johnston by specifically applying the well known techniques of LPC filter coefficients and line spectrum pairs for converting, as taught by admission, for the purpose of increasing compatibility for the coding system.

Regarding **claim 17** (depending on claim 13), the rejection is, in addition, based on the same reason described for claim 5 because the claim recites same or similar limitation(s) as claim 5.

Regarding **claim 18** (depending on claim 13), the rejection is, in addition, based on the same reason described for claim 11 because the claim recites same or similar limitation(s) as claim 11.

Regarding **claim 19** (depending on claim 13), the rejection is, in addition, based on the same reason described for claim 12 because the claim recites same or similar limitation(s) as claim 12.

10. Claims 3-4, 15-16, 20-29 and 32-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Srinivasan in view of Smith in view of Tsurushima in view of Johnston, and further in view of well known prior art (MPEP 2144.03).

Regarding **claim 3** (depending on claim 1), Srinivasan in view of Smith in view of Tsurushima in view of Johnston does not specifically disclose that the "quantizing and encoding steps employ fixed quantizer step sizes." However, the examiner takes official notice of the fact that it was well known in the art to provide quantizing and encoding steps with fixed quantizer step sizes.

Therefore, it would have been obvious to one of ordinary skill in the art at time the invention was made to modify Srinivasan and Johnston by specifically providing quantizing and encoding steps with fixed quantizer step sizes, for the purpose of further reducing transition rate for a coding system.

Regarding **claim 4** (depending on claim 1), Srinivasan in view of Smith in view of Tsurushima in view of Johnston does not specifically disclose that the "quantizing and encoding step reduces the mean square error in said signal." However, the examiner takes official notice of the fact that it was well known in

the art to reduce the mean square error (MSE) in said signal in quantizing and encoding step.

Therefore, it would have been obvious to one of ordinary skill in the art at time the invention was made to modify Srinivasan and Johnston by specifically providing quantizing and encoding steps for reducing the mean square error (MSE) in said signal, for the purpose of further increasing quality for a coding system.

Regarding **claim 15** (depending on claim 13), the rejection is, in addition, based on the same reason described for claim 3 because the claim recites same or similar limitation(s) as claim 3.

Regarding **claim 16** (depending on claim 13), the rejection is, in addition, based on the same reason described for claim 4 because the claim recites same or similar limitation(s) as claim 4.

Regarding **claims 20-24**, they disclose a method for decoding, which corresponds to an inverse method of claims 1, 2, 3, 5 and 12, respectively. The inverse method is obvious in that it simply provides functionally reversed process for the method found in claims 1, 2, 3, 5 and 12, respectively.

Regarding **claims 25-29**, they disclose a method for decoding, which corresponds to an inverse method of claims 13,14, 15, 17 and 19, respectively. The inversed method is obvious in that it simply provides functionally reversed process for the method found in claims 13,14, 15, 17 and 19, respectively.

Regarding **claim 32**, it discloses an apparatus. The rejection is based on the same reason described for claim 20 because the claim recites same or similar limitation(s) as claim 20.

Regarding **claim 33**, it discloses an apparatus. The rejection is based on the same reason described for claim 25 because the claim recites same or similar limitation(s) as claim 25.

Conclusion

11. Any response to this office action should be mailed to:
Commissioner of Patents and Trademarks, P.O. Box 1450, Alexandria, VA22313-1450
or faxed to:
(703)-872-9314
Hand-delivered responses should be brought to:
Crystal Park II, 2121 Crystal Drive, Arlington. VA. Sixth Floor (Receptionist).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to I Han whose telephone numbers is (703) 305-5631. The examiner can normally be reached on Monday through Thursday from 9 a.m. to 7 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richmond Devil, can be reached on (703) 305-6954.

Any inquiry of a general nature of relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

QH/qh
July 14, 2004

RICHEMOND DORVIL
SUPERVISORY PATENT EXAMINER